CLAIMS

What is claimed is:

1. A method of treating degenerative disc disease in an intervertebral disc having a nucleus pulposus, comprising administering autologous uncultured cells into a degenerated intervertebral disc.

2. The method of Claim 1, wherein the cells are concentrated prior to being administered into the intervertebral disc.

3. The method of Claim 2, wherein the cells are concentrated by centrifugation.

4. The method of Claim 2, wherein the cells are concentrated by filtration.

5. The method of Claim 1, wherein the cells are administered to the disc using a carrier.

6. The method of Claim 5, wherein the carrier is selected from the group consisting of beads, microspheres, nanospheres, hydrogels, gels, polymers, ceramics, collagen and platelet gels.

7. The method of Claim 1, wherein an additional therapeutic agent is administered into the intervertebral disc.

8. The method of Claim 7, wherein the additional therapeutic agent is selected from the group consisting of growth factors, differentiation factors, and nutritional supplements.

9. The method of Claim 8, wherein the additional therapeutic agent is a growth factor.

10. The method of Claim 7, wherein the additional therapeutic agent and the cells are administered into the intervertebral disc using a carrier.

11. The method of Claim 10, wherein the carrier is selected from the group consisting of beads, microspheres, nanospheres, hydrogels, gels, polymers, ceramics, collagen and platelet gels.

12. The method of Claim 7, wherein the additional therapeutic agent is administered simultaneously with administering the cells to the disc.

13. The method of Claim 7, wherein the additional therapeutic agent is administered prior to administering the cells to the disc.

14. The method of Claim 7, wherein the additional therapeutic agent is administered after administering the cells to the disc.

15. The method of Claim 1, wherein the cells are administered into the intervertebral disc in a formulation with a volume of between about 0.5 ml and about 10 ml.

16. The method of Claim 10, wherein the carrier comprises a hydrogel.

17. The method of Claim 10, wherein the carrier comprises microspheres.

18. The method of Claim 1, wherein the additional therapeutic agent is TGF-β.

19. The method of Claim 1, wherein the therapeutic agent is platelet concentrate.

20. The method of Claim 1, wherein the cells are administered into the nucleus pulposus of the disc.

21. The method of Claim 1, wherein the cells are administered into the annulus fibrosus of the disc.

22. The method of Claim 1, wherein a portion of the nucleus pulposus is removed prior to administering the cells into the intervertebral disc.

23. The method of Claim 1, wherein the cells are administered through a needle.

24. The method of Claim 23, wherein the needle has a maximum gauge of about 24 gauge.

25. The method of claim 1 wherein the cells are selected from the group consisting of mesenchymal stem cells, chondrocytes and other cells capable of forming cartilage.

26. The method of claim 1 wherein the cells comprise mesenchymal stem cells.

27. A formulation for treating degenerative disc disease, comprising:

a) autologous uncultured mesenchymal stem cells; and

b) an additional therapeutic agent,

wherein the formulation is present in an amount suitable for administration into a degenerating disc.

28. The formulation of Claim 27, wherein the mesenchymal stem cells are provided in a concentrated form.

29. The formulation of Claim 27, wherein the additional therapeutic agent is a growth factor.

30. A device for administering the formulation of Claim 27 to a degenerated intervertebral disc comprising:

a) a chamber containing the formulation; and

b) a delivery port adapted to administer the formulation to the disc.

31. The method of Claim 1, wherein the formulation is administered in an amount of less than about 1 ml.